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## TRACKING DATA EVALUATION REPORT FOR STS-119 and ISS

**Daily Period: Mar 14 at 000000 GMT through Mar 16 at 223901 GMT**  
**Mission Period: Mar 14 at 000000 GMT through Mar 16 at 223901 GMT**

### **1. EXECUTIVE SUMMARY**

This report summarizes all GN and SN tracking data for ISS and STS (except for ISS one-way Doppler data) since the beginning of mission support for STS-119. The executive summary of this report provides a daily overview of the number of passes received for ISS and STS as well as a daily summary of significant tracking data anomalies. The remainder of this report provides a detailed cumulative mission summary of all GN and SN tracking data for ISS and STS.

The C-band tracking support for ISS started on March 14, 2009. STS-119 was launched on March 15, 2009 at 234344 GMT.

Twenty-four ISS C-band passes from ANTQ, ASCQ, FRCF, WL2F, and WLPQ were received during the daily reporting period. All of the ISS C-band passes during the daily reporting period had nominal angle and range tracking data.

Seven STS C-band passes from ASCQ, FRCF and WLPQ were received during the daily reporting period. All of the STS C-band passes during the daily reporting period had nominal angle and range tracking data.

Three 1-way STS S-band passes from AGO3 and MIL3 were received during the daily reporting period. All of the 1-way STS S-band passes during the daily reporting period had nominal angle tracking data.

The cumulative mission percentages of anomalous SN TDRS-3, TDRS-4, TDRS-5, TDRS-6, and TDRS-10 tracking data for STS-119 are 4.1, 1.7, 3.2, 0.7, and 0.0 respectively. The anomalous SN tracking data has consisted of various Doppler drifts, biases, and/or spikes.

***No significant tracking data problems were noted for ISS or STS-119 during the daily reporting period.***

## **2. INTRODUCTION**

This memorandum, which is produced by the Metric Tracking Data Evaluation (MTDE) Task located within the Flight Dynamics Facility (FDF) at Goddard Space Flight Center (GSFC), provides a Ground Network (GN) and Space Network (SN) tracking data evaluation report for the Space Transportation System (STS) and for the International Space Station (ISS). This report includes information about data processing, network validation, and network calibration for STS and ISS missions.

## **3. DATA PROCESSING**

The metric tracking data evaluated for this report was processed using the Goddard Trajectory Determination System (GTDS), which is the primary orbit determination system used by the FDF. This system produces Observed minus Computed (O-C) values by comparing actual tracker measurements with computed measurements derived from weighted least-squares orbital solutions. Orbital solutions for ISS are derived by using 24 hours of C-band range tracking data as well as SN two-way range and Doppler tracking data if available. Orbital solutions for STS are derived by using one revolution (approximately 96 minutes) of SN two-way Doppler tracking data, GN S-band range and two-way range-rate tracking data, and C-band range tracking data.

## **4. NETWORK VALIDATION**

The validation of metric tracking data is the process of determining the quality of tracking data measurements received from the trackers. The output from the GTDS orbital solutions is evaluated to assess the accuracy and usefulness of the tracking data. The O-C values (also known as residuals) and the amount of data edited from the orbital solutions (a 3-sigma edit criterion is normally used) are statistically analyzed to identify data anomalies and to assess the overall network tracking performance. Tracking data anomalies are identified and noted in this report. Anomalous tracking data as well as tracking data that is flagged invalid by the tracker is generally not used for orbit determination.

## **5. NETWORK CALIBRATION**

The calibration of metric tracking data is the process of using statistical evaluation techniques to determine tracker and network performance. Anomalous tracking data as well as tracking data that is flagged invalid by the tracker is generally not used for network calibration. Calibration parameters for each tracker, which are computed from the GTDS calibration O-C statistics for each pass, are defined as follows:

**Tracker Mean:** A weighted sample mean of pass O-C means. The tracker mean is an estimate of the bias in the measurements.

**Deviation:** A weighted 2-sigma sample standard deviation (SD) of pass O-C means about the tracker mean. A Student's t correction for small sample size is applied when necessary. If there are fewer than four passes for a tracker, the deviation is not computed. The deviation is a measure of the bias consistency.

**Average Pass SD:** A weighted Root Mean Square (rms) of pass O-C standard deviations. This parameter provides an upper limit for the average pass system noise.

**Root Sum Square:** The Root Sum Square (rss) of the tracker mean, half the deviation, and the average pass SD. This parameter is an estimate of the average measurement error. The rss is not computed if there are fewer than four passes for a tracker.

All of these statistical parameters are weighted by the number of points in each pass.

## **6. GN TRACKING DATA EVALUATION CRITERIA**

GN S-band tracking data for STS is comprised of x-angle, y-angle, range and range-rate tracking data. GN C-band tracking data for STS and ISS is comprised of azimuth angle, elevation angle, and range tracking data.

S-band and C-band GN tracking data taken below 7° in elevation is not used for orbit determination or for network calibration. Poor quality x-angle or azimuth angle tracking data taken in antenna keyhole regions (where the absolute value of the y-angle is greater than or equal to 70° for X-Y antennas or the absolute value of the elevation angle is greater than or equal to 70° for Az-EI antennas) is not considered anomalous. Tracking data received during periods of antenna masking is excluded from the tracker calibration statistics and is not considered anomalous.

S-band GN angle tracking data is generally considered to be anomalous if more than 20 percent of the data flagged valid has residuals greater than or equal to 0.05°. C-band GN angle tracking data is generally considered to be anomalous if more than 20 percent of the angle data flagged valid has residuals greater than or equal to 0.10°. S-band GN range tracking data is generally considered to be anomalous if more than 20 percent of the data flagged valid has residuals greater than or equal to 20 meters. C-band GN range tracking data is generally considered to be anomalous if more than 20 percent of the data flagged valid has residuals greater than or equal to 50 meters. S-band 2-way GN range-rate tracking data is generally considered to be anomalous if more than 20 percent of the data flagged valid has residuals greater than or equal to greater than 0.5 meters per second.

Occasionally a C-band tracker will track the wrong target vehicle when STS and ISS are in very close proximity to each other. This pass will be identified in the FDF reports with the name of the intended target vehicle. If no usable tracking data is received from the intended target vehicle, then this pass will be identified as an anomalous pass.

## **7. SN TRACKING DATA EVALUATION CRITERIA**

SN tracking data for ISS is comprised of one-way S-band and K-band Doppler tracking data. Only the one-way S-band Doppler tracking data is used in the orbit determination process for ISS. The ISS one-way S-band Doppler tracking data residuals, which measure the offset from the nominal frequency of the ISS transponder, are generally considered nominal as long as the residuals are less than 700 Hertz. Reports are generated by the FDF on a weekly and monthly basis that summarize the frequency offset for the ISS transponders. If the frequency offset exceeds 700 Hertz, FDF personnel will issue a report recommending an adjustment to the forward and transmit frequencies for ISS.

If 2-way SN tracking of ISS is available, then the FDF will use the coherent range and Doppler tracking data as well as C-band tracking data for orbit determination purposes.

SN tracking data for STS is comprised of two-way S-band Doppler tracking data. The Doppler tracking data for STS is used for determining the quality of the tracking service. Each Doppler tracking data observation is evaluated and categorized as usable, as anomalous, or as invalid. An invalid observation is one that has been flagged as invalid in the tracking data message (TDM) at White Sands Complex (WSC). Each tracking data event is rated as a success or as a failure. A success is a tracking data event that has at least 70 percent usable Doppler tracking data. A failure is an event that has less than 70 percent usable Doppler data.

## **8. GN TRACKING DATA PASSES**

The following table lists the number of daily and mission S-band and C-band passes received from each tracker for both ISS and STS having a maximum elevation of at least 7°. Only passes with a maximum elevation of at least 7° are used by the FDF for orbit determination and anomaly reporting. The number of passes listed in this table may not agree with the actual number of passes scheduled.

Tracker	ISS		STS-119	
	Daily	Mission	Daily	Mission
<b>AGO3</b>	0	0	1	1
<b>ANTQ</b>	2	2	0	0
<b>ASCQ</b>	3	3	1	1
<b>EAFF</b>	4	4	0	0
<b>FRCF</b>	5	5	3	3
<b>MIL3</b>	0	0	2	2
<b>WL2F</b>	6	6	0	0
<b>WLPQ</b>	5	5	3	3
<b>TOTALS</b>	25	25	10	10

## **9. GN TRACKING DATA ANOMALIES**

The following table contains a chronological listing of all GN tracking data anomalies for both ISS and STS for the entire mission. Tracking data anomalies are only reported for passes having a maximum elevation above 7°. Tracking data in the keyhole region or tracking data affected by station masking is not considered anomalous.

<b>Start</b>	<b>Stop</b>	<b>Tracker</b>	<b>Satellite</b>	<b>Comments</b>

## **10. GN STATISTICS**

The following report provides GN tracking data residual statistics for both ISS and STS. Statistics, consisting of mean, standard deviation and number of points, are computed for each pass for angle, range, and range-rate tracking data residuals. The statistics are summarized for each tracking station for each satellite. The statistics are computed for two different time intervals. The first time interval corresponds to the tracking data summarized on a daily basis. The second time interval corresponds to the tracking data summarized for the entire mission. Group statistics, consisting of mean, deviation, average pass standard deviation, and rss, are also computed for each tracker for both ISS and STS.

### **FLIGHT DYNAMICS FACILITY GN STATISTICS PROGRAM**

20090314/000000 = START TIME FOR STATISTICS INTERVAL 1  
20090316/223901 = STOP TIME FOR STATISTICS INTERVAL 1

20090314/000000 = START TIME FOR STATISTICS INTERVAL 2  
20090316/223901 = STOP TIME FOR STATISTICS INTERVAL 2

LO SPEED TRACKING DATA  
N = INCLUDE TT&C DATA (Y/N)

SATELLITE(S)  
ISS  
STS-119

STATION(S)  
ALL

### **STATISTICS INTERVAL 1**

STATION = AGO3 SATELLITE = STS-119

ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090316/184240	20090316/185030	0.031	0.013	31	100.0	-0.014	0.007	31	100.0	-----	-----	0	0.0	-----	0 0.0 1

STATION = AGO3 SATELLITE = STS-119

RESIDUALS					VDNA NOISE					RATING					
MEAN	DEV	SD	RSS	PTS PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY				
ANGLE 1 (DEG)	0.031	-----	0.013	-----	31	1	0.0029	0.0029	0.0029	1	1	100.0			
ANGLE 2 (DEG)	-0.014	-----	0.007	-----	31	1	0.0031	0.0031	0.0031	1	1	100.0			
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0			

STATION = AGO3 SATELLITE = STS-119 SUMMARY

STATION = ANTQ SATELLITE = ISS

		ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090315/210306	20090315/211554	0.004	0.003	58	100.0	-0.004	0.006	58	100.0	-1.885	6.326	58	100.0	-----	-----	-----	0 0.0 0
20090315/223848	20090315/225036	0.005	0.002	41	100.0	-0.003	0.005	41	100.0	-2.425	8.166	41	100.0	-----	-----	-----	0 0.0 0

STATION = ANTQ SATELLITE = ISS

		RESIDUALS				VDNA NOISE				RATING							
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY			
ANGLE 1 (DEG)		0.004	-----	0.003	-----	99	2	0.0013	0.0014	0.0013	2	2	100.0				
ANGLE 2 (DEG)		-0.004	-----	0.006	-----	99	2	0.0035	0.0057	0.0049	2	2	100.0				
RANGE (M)		-2.109	-----	7.142	-----	99	2	4.5078	8.6083	6.5478	2	2	100.0				
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0				

STATION = ANTQ SATELLITE = ISS

SUMMARY

STATION = ASCQ SATELLITE = ISS

		ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090315/162100	20090315/163148	0.002	0.005	41	100.0	0.010	0.006	41	100.0	3.803	14.491	41	100.0	-----	-----	-----	0 0.0 0
20090315/175618	20090315/180736	-0.001	0.005	51	100.0	0.010	0.006	51	100.0	5.682	17.247	51	98.0	-----	-----	-----	0 0.0 0
20090316/164730	20090316/170000	0.001	0.004	65	100.0	0.002	0.004	69	100.0	9.381	10.478	69	100.0	-----	-----	-----	0 0.0 0

STATION = ASCQ SATELLITE = ISS

		RESIDUALS				VDNA NOISE				RATING							
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY			
ANGLE 1 (DEG)		0.001	-----	0.005	-----	157	3	0.0004	0.0032	0.0024	3	3	100.0				
ANGLE 2 (DEG)		0.007	-----	0.005	-----	161	3	0.0004	0.0043	0.0027	3	3	100.0				
RANGE (M)		6.789	-----	13.948	-----	161	3	7.6611	17.6598	13.3273	3	3	99.4				
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	3	0.0				

STATION = ASCQ SATELLITE = ISS

SUMMARY

STATION = ASCQ SATELLITE = STS-119

		ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090316/172206	20090316/173218	0.001	0.005	47	100.0	0.013	0.005	47	100.0	-3.518	10.507	47	100.0	-----	-----	-----	-----	0	0.0

STATION = ASCQ SATELLITE = STS-119

RESIDUALS

VDNA NOISE

RATING

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.001	-----	0.005	-----	47	1	0.0018	0.0018	0.0018	1	1	100.0	
ANGLE 2 (DEG)	0.013	-----	0.005	-----	47	1	0.0012	0.0012	0.0012	1	1	100.0	
RANGE (M)	-3.518	-----	10.507	-----	47	1	5.1062	5.1062	5.1062	1	1	100.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0	

STATION = ASCQ SATELLITE = STS-119 SUMMARY

STATION = EAFF SATELLITE = ISS

	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)						
	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C	
20090316/014512	20090316/015600	0.006	0.009	54	100.0	-0.000	0.006	54	100.0	-1.350	23.546	54	98.1	-----	-----	-----	0	0.0	0
20090316/031954	20090316/033130	0.000	0.006	63	100.0	-0.005	0.011	63	100.0	1.078	17.255	63	98.4	-----	-----	-----	0	0.0	0
20090316/094554	20090316/095730	-0.001	0.006	67	100.0	-0.004	0.007	67	100.0	5.283	19.621	66	97.0	-----	-----	-----	0	0.0	0
20090316/112142	20090316/113106	0.003	0.011	29	100.0	-0.000	0.006	29	100.0	8.596	18.289	29	100.0	-----	-----	-----	0	0.0	0

STATION = EAFF SATELLITE = ISS SUMMARY

RESIDUALS

VDNA NOISE

RATING

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.002	0.010	0.008	0.009	213	4	0.0050	0.0113	0.0072	4	4	100.0	
ANGLE 2 (DEG)	-0.003	0.008	0.008	0.009	213	4	0.0051	0.0060	0.0055	4	4	100.0	
RANGE (M)	2.797	12.612	19.883	21.046	212	4	12.6056	19.2360	16.0413	4	4	98.1	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0	

STATION = EAFF SATELLITE = ISS SUMMARY

STATION = FRCF SATELLITE = ISS

	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)						
	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C	
20090315/025224	20090315/030424	-0.007	0.009	68	100.0	0.002	0.008	68	100.0	0.596	13.666	68	98.5	-----	-----	-----	0	0.0	0
20090315/042848	20090315/043924	-0.009	0.007	43	100.0	-0.008	0.010	43	100.0	4.110	21.786	43	100.0	-----	-----	-----	0	0.0	0
20090315/091854	20090315/092936	-0.003	0.010	52	100.0	0.003	0.014	52	100.0	7.250	23.588	52	96.2	-----	-----	-----	0	0.0	0
20090315/105354	20090315/110530	-0.002	0.008	65	100.0	0.006	0.010	65	100.0	2.510	18.589	65	98.5	-----	-----	-----	0	0.0	0
20090316/081100	20090316/082018	-0.000	0.009	17	100.0	-0.004	0.015	17	100.0	4.725	20.383	17	100.0	-----	-----	-----	0	0.0	0

STATION = FRCF SATELLITE = ISS SUMMARY

## RESIDUALS

## VDNA NOISE

## RATING

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.005	0.009	0.009	0.011	245	5	0.0044	0.0079	0.0057	5	5	100.0	
ANGLE 2 (DEG)	0.001	0.015	0.011	0.013	245	5	0.0064	0.0136	0.0096	5	5	100.0	
RANGE (M)	3.419	7.441	19.320	19.970	245	5	12.8557	23.6165	17.4745	5	5	98.4	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	5	0.0	

STATION = FRCF SATELLITE = ISS SUMMARY

STATION = FRCF SATELLITE = STS-119

## ANGLE 1 RESIDUALS (DEG)

MEAN SD PTS %USE A

20090316/024224	20090316/025118	-0.002	0.006	39	100.0
20090316/085800	20090316/090724	-0.006	0.008	31	100.0
20090316/103100	20090316/104042	0.001	0.010	48	100.0

## ANGLE 2 RESIDUALS (DEG)

MEAN SD PTS %USE A

0.005	0.006	41	100.0
0.002	0.011	31	100.0
0.002	0.013	48	100.0

## RANGE RESIDUALS (M)

MEAN SD PTS %USE A

1.453	9.421	41	100.0
4.330	8.320	31	100.0
0.920	10.759	47	97.9

## RANGE-RATE RESIDUALS (M/S)

MEAN SD PTS %USE A M ANOMALY C

-----	-----	-----	0	0.0	0
-----	-----	-----	0	0.0	0
-----	-----	-----	0	0.0	0

STATION = FRCF SATELLITE = STS-119

## RESIDUALS

## VDNA NOISE

## RATING

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.002	-----	0.008	-----	118	3	0.0033	0.0062	0.0047	3	3	100.0	
ANGLE 2 (DEG)	0.003	-----	0.011	-----	120	3	0.0034	0.0123	0.0072	3	3	100.0	
RANGE (M)	1.992	-----	9.717	-----	119	3	5.0507	6.3417	5.8358	3	3	99.2	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	3	0.0	

STATION = FRCF SATELLITE = STS-119 SUMMARY

STATION = MIL3 SATELLITE = STS-119

## ANGLE 1 RESIDUALS (DEG)

MEAN SD PTS %USE A

20090316/073300	20090316/074300	0.021	0.008	10	100.0
20090316/090620	20090316/091420	0.012	0.009	7	100.0

## ANGLE 2 RESIDUALS (DEG)

MEAN SD PTS %USE A

-0.008	0.006	14	100.0
0.007	0.005	7	100.0

## RANGE RESIDUALS (M)

MEAN SD PTS %USE A

-----	-----	0	0.0
-----	-----	0	0.0

## RANGE-RATE RESIDUALS (M/S)

MEAN SD PTS %USE A M ANOMALY C

-----	-----	0	0.0	1
-----	-----	0	0.0	1

STATION = MIL3 SATELLITE = STS-119

## RESIDUALS

## VDNA NOISE

## RATING

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.017	-----	0.008	-----	17	2	0.0058	0.0097	0.0084	2	2	100.0	
ANGLE 2 (DEG)	-0.003	-----	0.006	-----	21	2	0.0065	0.0071	0.0068	2	2	100.0	
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	

STATION = MIL3 SATELLITE = STS-119 SUMMARY

DATE	TIME	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090314/234942	20090314/235954	0.005	0.010	61	100.0	0.009	0.009	61	100.0	10.487	12.620	61	100.0	-----	-----	0	0.0 0
20090315/012454	20090315/013718	0.000	0.015	60	100.0	-0.004	0.013	60	100.0	-3.406	10.030	60	100.0	-----	-----	0	0.0 0
20090315/030206	20090315/031242	0.003	0.018	13	100.0	-0.006	0.021	13	100.0	-10.562	17.840	13	100.0	-----	-----	0	0.0 0
20090315/061424	20090315/062618	-0.000	0.011	56	100.0	0.003	0.014	56	100.0	3.476	17.412	56	100.0	-----	-----	0	0.0 0
20090315/074936	20090315/080136	0.002	0.011	65	100.0	0.001	0.013	65	100.0	4.507	13.689	65	100.0	-----	-----	0	0.0 0
20090315/224206	20090315/225242	0.009	0.016	20	100.0	0.017	0.016	20	100.0	1.383	15.336	20	100.0	-----	-----	0	0.0 0

STATION	SATELLITE	RESIDUALS				VDNA NOISE				RATING			
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE
ANGLE 1 (DEG)		0.002	0.008	0.013	0.013	275	6	0.0080	0.0226	0.0114	6	6	100.0
ANGLE 2 (DEG)		0.003	0.017	0.013	0.016	275	6	0.0078	0.0221	0.0106	6	6	100.0
RANGE (M)		2.957	15.644	13.963	16.276	275	6	9.4847	16.5704	12.1483	6	6	100.0
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	6	0.0

STATION = WL2F SATELLITE = ISS SUMMARY

DATE	TIME	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090316/001624	20090316/002924	-0.000	0.005	66	100.0	0.005	0.005	69	100.0	2.886	13.354	69	100.0	-----	-----	0	0.0 0
20090316/015600	20090316/020412	-0.003	0.003	42	100.0	0.010	0.004	42	100.0	-5.968	12.674	42	97.6	-----	-----	0	0.0 0
20090316/050612	20090316/051736	-0.001	0.003	36	100.0	0.014	0.003	36	100.0	-4.332	10.425	36	100.0	-----	-----	0	0.0 0
20090316/064118	20090316/065412	0.001	0.006	67	100.0	0.010	0.003	67	100.0	1.735	16.194	67	98.5	-----	-----	0	0.0 0
20090316/081718	20090316/082848	-0.002	0.003	37	100.0	0.007	0.003	37	100.0	1.163	14.953	37	100.0	-----	-----	0	0.0 0

STATION	SATELLITE	RESIDUALS				VDNA NOISE				RATING			
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE
ANGLE 1 (DEG)		-0.001	0.004	0.005	0.005	248	5	0.0021	0.0031	0.0026	5	5	100.0
ANGLE 2 (DEG)		0.009	0.009	0.004	0.011	251	5	0.0013	0.0031	0.0021	5	5	100.0
RANGE (M)		-0.192	10.710	13.950	14.944	251	5	10.6116	13.9374	12.0236	5	5	99.2
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	5	0.0

STATION = WLPQ SATELLITE = ISS SUMMARY

STATION = WLPQ SATELLITE = STS-119

ANGLE 1 RESIDUALS (DEG)								ANGLE 2 RESIDUALS (DEG)								RANGE RESIDUALS (M)								RANGE-RATE RESIDUALS (M/S)							
	MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A	M	ANOMALY C					
20090316/011818	20090316/012724	-0.002	0.002	24	100.0	0.010	0.004	24	100.0	-10.883	10.150	24	100.0	-	-	-	-	-	-	-	-	0	0.0	0							
20090316/055836	20090316/060900	-0.001	0.004	39	100.0	0.010	0.003	39	100.0	-0.382	5.159	39	100.0	-	-	-	-	-	-	-	-	0	0.0	0							
20090316/073118	20090316/074218	-0.000	0.003	48	100.0	0.004	0.003	48	100.0	-0.023	8.919	48	100.0	-	-	-	-	-	-	-	-	0	0.0	0							

STATION = WLPQ SATELLITE = STS-119

RESIDUALS								VDNA NOISE								RATING							
	MEAN	DEV	SD	RSS	PTS	PASSES			MIN	MAX	RMS	PASSES	TOTALPASSES			%USE	ANOMALY						
ANGLE 1 (DEG)	-0.001	-----	0.003	-----	111	3	0.0008	0.0017	0.0013	3	3	3	100.0	-	-	-	-						
ANGLE 2 (DEG)	0.007	-----	0.003	-----	111	3	0.0011	0.0017	0.0013	3	3	3	100.0	-	-	-	-						
RANGE (M)	-2.497	-----	8.119	-----	111	3	2.5249	3.7362	3.3816	3	3	3	100.0	-	-	-	-						
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	0	3	0.0	-	-	-	-						

STATION = WLPQ SATELLITE = STS-119 SUMMARY

#### COMBINED STATISTICS FOR EACH STATION

STATION = AGO3  
SATELLITE = STS-119

RESIDUALS								VDNA NOISE								RATING							
	MEAN	DEV	SD	RSS	PTS	PASSES			MIN	MAX	RMS	PASSES	TOTALPASSES			%USE	ANOMALY						
ANGLE 1 (DEG)	0.031	-----	0.013	-----	31	1	0.0029	0.0029	0.0029	1	1	1	100.0	-	-	-	-						
ANGLE 2 (DEG)	-0.014	-----	0.007	-----	31	1	0.0031	0.0031	0.0031	1	1	1	100.0	-	-	-	-						
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	0	1	0.0	-	-	-	-						
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	0	1	0.0	-	-	-	-						

COMBINED STATISTICS SUMMARY FOR AGO3

STATION = ANTO  
SATELLITE = ISS

RESIDUALS								VDNA NOISE								RATING							
	MEAN	DEV	SD	RSS	PTS	PASSES			MIN	MAX	RMS	PASSES	TOTALPASSES			%USE	ANOMALY						
ANGLE 1 (DEG)	0.000	-----	0.000	-----	0	0	-----	-----	-----	0	0	0	0	-	-	-	-						
ANGLE 2 (DEG)	0.000	-----	0.000	-----	0	0	-----	-----	-----	0	0	0	0	-	-	-	-						
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	0	0	0	-	-	-	-						
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	0	0	0	-	-	-	-						

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.004	-----	0.003	-----	99	2	0.0013	0.0014	0.0013	2	2	100.0	
ANGLE 2 (DEG)	-0.004	-----	0.006	-----	99	2	0.0035	0.0057	0.0049	2	2	100.0	
RANGE (M)	-2.109	-----	7.142	-----	99	2	4.5078	8.6083	6.5478	2	2	100.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	

COMBINED STATISTICS SUMMARY FOR ANTO

STATION = ASCQ  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	0.001	0.004	0.005	0.005	204	4	0.0004	0.0032	0.0023	4	4	100.0			
ANGLE 2 (DEG)	0.008	0.016	0.005	0.013	208	4	0.0004	0.0043	0.0025	4	4	100.0			
RANGE (M)	4.460	17.570	13.250	16.512	208	4	5.1062	17.6598	12.0336	4	4	99.5			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0			

COMBINED STATISTICS SUMMARY FOR ASCQ

STATION = EAFF  
 SATELLITE = ISS

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	0.002	0.010	0.008	0.009	213	4	0.0050	0.0113	0.0072	4	4	100.0			
ANGLE 2 (DEG)	-0.003	0.008	0.008	0.009	213	4	0.0051	0.0060	0.0055	4	4	100.0			
RANGE (M)	2.797	12.612	19.883	21.046	212	4	12.6056	19.2360	16.0413	4	4	98.1			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0			

COMBINED STATISTICS SUMMARY FOR EAFF

STATION = FRCF  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	-0.004	0.008	0.009	0.010	363	8	0.0033	0.0079	0.0055	8	8	100.0			
ANGLE 2 (DEG)	0.002	0.011	0.011	0.012	365	8	0.0034	0.0136	0.0090	8	8	100.0			
RANGE (M)	2.953	5.633	16.805	17.293	364	8	5.0507	23.6165	14.9166	8	8	98.6			

RANGE-RATE (M/S) ----- 0 0 ----- 0 8 0.0  
 COMBINED STATISTICS SUMMARY FOR FRCF

STATION = MIL3  
 SATELLITE = STS-119

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.017	-----	0.008	-----	17	2	0.0058	0.0097	0.0084	2	2	100.0	
ANGLE 2 (DEG)	-0.003	-----	0.006	-----	21	2	0.0065	0.0071	0.0068	2	2	100.0	
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	

COMBINED STATISTICS SUMMARY FOR MIL3

STATION = WL2F  
 SATELLITE = ISS

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.002	0.008	0.013	0.013	275	6	0.0080	0.0226	0.0114	6	6	100.0	
ANGLE 2 (DEG)	0.003	0.017	0.013	0.016	275	6	0.0078	0.0221	0.0106	6	6	100.0	
RANGE (M)	2.957	15.644	13.963	16.276	275	6	9.4847	16.5704	12.1483	6	6	100.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	6	0.0	

COMBINED STATISTICS SUMMARY FOR WL2F

STATION = WLPQ  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.001	0.003	0.004	0.005	359	8	0.0008	0.0031	0.0023	8	8	100.0	
ANGLE 2 (DEG)	0.008	0.008	0.004	0.010	362	8	0.0011	0.0031	0.0019	8	8	100.0	
RANGE (M)	-0.899	9.903	12.464	13.441	362	8	2.5249	13.9374	10.4119	8	8	99.4	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	8	0.0	

COMBINED STATISTICS SUMMARY FOR WLPQ

## STATISTICS INTERVAL 2

STATION = AGO3 SATELLITE = STS-119

ANGLE 1 RESIDUALS (DEG)					ANGLE 2 RESIDUALS (DEG)					RANGE RESIDUALS (M)					RANGE-RATE RESIDUALS (M/S)						
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090316/184240	20090316/185030	0.031	0.013	31	100.0	-0.014	0.007	31	100.0	-----	-----	0	0.0	-----	-----	0	0.0	1			

STATION = AGO3 SATELLITE = STS-119

RESIDUALS					VDNA NOISE					RATING							
MEAN	DEV	SD	RSS	PTS PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A	M	ANOMALY C
ANGLE 1 (DEG)	0.031	-----	0.013	-----	31	1	0.0029	0.0029	0.0029	1	100.0						
ANGLE 2 (DEG)	-0.014	-----	0.007	-----	31	1	0.0031	0.0031	0.0031	1	100.0						
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0					
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0					

STATION = AGO3 SATELLITE = STS-119 SUMMARY

STATION = ANTQ SATELLITE = ISS

ANGLE 1 RESIDUALS (DEG)					ANGLE 2 RESIDUALS (DEG)					RANGE RESIDUALS (M)					RANGE-RATE RESIDUALS (M/S)						
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090315/210306	20090315/211554	0.004	0.003	58	100.0	-0.004	0.006	58	100.0	-1.885	6.326	58	100.0	-----	-----	0	0.0	0			
20090315/223848	20090315/225036	0.005	0.002	41	100.0	-0.003	0.005	41	100.0	-2.425	8.166	41	100.0	-----	-----	0	0.0	0			

STATION = ANTQ SATELLITE = ISS

RESIDUALS					VDNA NOISE					RATING							
MEAN	DEV	SD	RSS	PTS PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A	M	ANOMALY C
ANGLE 1 (DEG)	0.004	-----	0.003	-----	99	2	0.0013	0.0014	0.0013	2	2	100.0					
ANGLE 2 (DEG)	-0.004	-----	0.006	-----	99	2	0.0035	0.0057	0.0049	2	2	100.0					
RANGE (M)	-2.109	-----	7.142	-----	99	2	4.5078	8.6083	6.5478	2	2	100.0					
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0					

STATION = ANTQ SATELLITE = ISS SUMMARY

STATION = ASCQ SATELLITE = ISS

ANGLE 1 RESIDUALS (DEG)					ANGLE 2 RESIDUALS (DEG)					RANGE RESIDUALS (M)					RANGE-RATE RESIDUALS (M/S)						
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090315/162100	20090315/163148	0.002	0.005	41	100.0	0.010	0.006	41	100.0	3.803	14.491	41	100.0	-----	-----	0	0.0	0			

20090315/175618	20090315/180736	-0.001	0.005	51	100.0	0.010	0.006	51	100.0	5.682	17.247	51	98.0	-----	-----	0	0.0	0
20090316/164730	20090316/170000	0.001	0.004	65	100.0	0.002	0.004	69	100.0	9.381	10.478	69	100.0	-----	-----	0	0.0	0

STATION = ASCQ SATELLITE = ISS		RESIDUALS				VDNA NOISE				RATING							
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY			
ANGLE 1 (DEG)		0.001	-----	0.005	-----	157	3	0.0004	0.0032	0.0024	3	3	3	100.0			
ANGLE 2 (DEG)		0.007	-----	0.005	-----	161	3	0.0004	0.0043	0.0027	3	3	3	100.0			
RANGE (M)		6.789	-----	13.948	-----	161	3	7.6611	17.6598	13.3273	3	3	3	99.4			
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	3	3	0.0			

STATION = ASCQ SATELLITE = ISS		SUMMARY																
		ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)				
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C	
20090316/172206	20090316/173218	0.001	0.005	47	100.0	0.013	0.005	47	100.0	-3.518	10.507	47	100.0	-----	-----	0	0.0	0

STATION = ASCQ SATELLITE = STS-119		RESIDUALS				VDNA NOISE				RATING							
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY			
ANGLE 1 (DEG)		0.001	-----	0.005	-----	47	1	0.0018	0.0018	0.0018	1	1	1	100.0			
ANGLE 2 (DEG)		0.013	-----	0.005	-----	47	1	0.0012	0.0012	0.0012	1	1	1	100.0			
RANGE (M)		-3.518	-----	10.507	-----	47	1	5.1062	5.1062	5.1062	1	1	1	100.0			
RANGE-RATE (M/S)		-----	-----	-----	-----	0	0	-----	-----	-----	0	1	1	0.0			

STATION = ASCQ SATELLITE = STS-119		SUMMARY																
		ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)				
		MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C	
20090316/014512	20090316/015600	0.006	0.009	54	100.0	-0.000	0.006	54	100.0	-1.350	23.546	54	98.1	-----	-----	0	0.0	0
20090316/031954	20090316/033130	0.000	0.006	63	100.0	-0.005	0.011	63	100.0	1.078	17.255	63	98.4	-----	-----	0	0.0	0
20090316/094554	20090316/095730	-0.001	0.006	67	100.0	-0.004	0.007	67	100.0	5.283	19.621	66	97.0	-----	-----	0	0.0	0
20090316/112142	20090316/113106	0.003	0.011	29	100.0	-0.000	0.006	29	100.0	8.596	18.289	29	100.0	-----	-----	0	0.0	0

STATION = EAFF SATELLITE = ISS		RESIDUALS				VDNA NOISE				RATING							
		MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY			
STATION = EAFF SATELLITE = ISS		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

ANGLE 1 (DEG)	0.002	0.010	0.008	0.009	213	4	0.0050	0.0113	0.0072	4	4	100.0
ANGLE 2 (DEG)	-0.003	0.008	0.008	0.009	213	4	0.0051	0.0060	0.0055	4	4	100.0
RANGE (M)	2.797	12.612	19.883	21.046	212	4	12.6056	19.2360	16.0413	4	4	98.1
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0

STATION = EAFF SATELLITE = ISS SUMMARY

STATION = FRCF SATELLITE = ISS	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090315/025224 20090315/030424	-0.007	0.009	68	100.0	0.002	0.008	68	100.0	0.596	13.666	68	98.5	-----	-----	0	0.0 0
20090315/042848 20090315/043924	-0.009	0.007	43	100.0	-0.008	0.010	43	100.0	4.110	21.786	43	100.0	-----	-----	0	0.0 0
20090315/091854 20090315/092936	-0.003	0.010	52	100.0	0.003	0.014	52	100.0	7.250	23.588	52	96.2	-----	-----	0	0.0 0
20090315/105354 20090315/110530	-0.002	0.008	65	100.0	0.006	0.010	65	100.0	2.510	18.589	65	98.5	-----	-----	0	0.0 0
20090316/081100 20090316/082018	-0.000	0.009	17	100.0	-0.004	0.015	17	100.0	4.725	20.383	17	100.0	-----	-----	0	0.0 0

STATION = FRCF SATELLITE = ISS	RESIDUALS						VDNA NOISE						RATING					
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A M ANOMALY C	
ANGLE 1 (DEG)	-0.005	0.009	0.009	0.011	245	5	0.0044	0.0079	0.0057	5	5	100.0	-----	-----	0	0.0 0		
ANGLE 2 (DEG)	0.001	0.015	0.011	0.013	245	5	0.0064	0.0136	0.0096	5	5	100.0	-----	-----	0	0.0 0		
RANGE (M)	3.419	7.441	19.320	19.970	245	5	12.8557	23.6165	17.4745	5	5	98.4	-----	-----	0	0.0 0		
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	5	0.0	-----	-----	0	0.0 0		

STATION = FRCF SATELLITE = ISS SUMMARY

STATION = FRCF SATELLITE = STS-119	ANGLE 1 RESIDUALS (DEG)				ANGLE 2 RESIDUALS (DEG)				RANGE RESIDUALS (M)				RANGE-RATE RESIDUALS (M/S)			
	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A M ANOMALY C
20090316/024224 20090316/025118	-0.002	0.006	39	100.0	0.005	0.006	41	100.0	1.453	9.421	41	100.0	-----	-----	0	0.0 0
20090316/085800 20090316/090724	-0.006	0.008	31	100.0	0.002	0.011	31	100.0	4.330	8.320	31	100.0	-----	-----	0	0.0 0
20090316/103100 20090316/104042	0.001	0.010	48	100.0	0.002	0.013	48	100.0	0.920	10.759	47	97.9	-----	-----	0	0.0 0

STATION = FRCF SATELLITE = STS-119	RESIDUALS						VDNA NOISE						RATING					
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A M ANOMALY C	
ANGLE 1 (DEG)	-0.002	-----	0.008	-----	118	3	0.0033	0.0062	0.0047	3	3	100.0	-----	-----	0	0.0 0		
ANGLE 2 (DEG)	0.003	-----	0.011	-----	120	3	0.0034	0.0123	0.0072	3	3	100.0	-----	-----	0	0.0 0		
RANGE (M)	1.992	-----	9.717	-----	119	3	5.0507	6.3417	5.8358	3	3	99.2	-----	-----	0	0.0 0		
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	3	0.0	-----	-----	0	0.0 0		

STATION = FRCF SATELLITE = STS-119 SUMMARY

STATION = MIL3 SATELLITE = STS-119

ANGLE 1 RESIDUALS (DEG)					ANGLE 2 RESIDUALS (DEG)					RANGE RESIDUALS (M)					RANGE-RATE RESIDUALS (M/S)						
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090316/073300	20090316/074300	0.021	0.008	10	100.0	-0.008	0.006	14	100.0	-----	-----	0	0.0	-----	-----	0	0.0	1			
20090316/090620	20090316/091420	0.012	0.009	7	100.0	0.007	0.005	7	100.0	-----	-----	0	0.0	-----	-----	0	0.0	1			

STATION = MIL3 SATELLITE = STS-119

RESIDUALS					VDNA NOISE					RATING															
MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A	M	ANOMALY C							
ANGLE 1 (DEG)	0.017	-----	0.008	-----	17	2	0.0058	0.0097	0.0084	2	2	100.0	ANGLE 2 (DEG)	-0.003	-----	0.006	-----	21	2	0.0065	0.0071	0.0068	2	2	100.0
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0

STATION = MIL3 SATELLITE = STS-119 SUMMARY

STATION = WL2F SATELLITE = ISS

ANGLE 1 RESIDUALS (DEG)					ANGLE 2 RESIDUALS (DEG)					RANGE RESIDUALS (M)					RANGE-RATE RESIDUALS (M/S)						
MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	MEAN	SD	PTS	%USE A	M	ANOMALY C
20090314/234942	20090314/235954	0.005	0.010	61	100.0	0.009	0.009	61	100.0	10.487	12.620	61	100.0	-----	-----	0	0.0	0			
20090315/012454	20090315/013718	0.000	0.015	60	100.0	-0.004	0.013	60	100.0	-3.406	10.030	60	100.0	-----	-----	0	0.0	0			
20090315/030206	20090315/031242	0.003	0.018	13	100.0	-0.006	0.021	13	100.0	-10.562	17.840	13	100.0	-----	-----	0	0.0	0			
20090315/061424	20090315/062618	-0.000	0.011	56	100.0	0.003	0.014	56	100.0	3.476	17.412	56	100.0	-----	-----	0	0.0	0			
20090315/074936	20090315/080136	0.002	0.011	65	100.0	0.001	0.013	65	100.0	4.507	13.689	65	100.0	-----	-----	0	0.0	0			
20090315/224206	20090315/225242	0.009	0.016	20	100.0	0.017	0.016	20	100.0	1.383	15.336	20	100.0	-----	-----	0	0.0	0			

STATION = WL2F SATELLITE = ISS

RESIDUALS					VDNA NOISE					RATING															
MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	SD	PTS	%USE A	M	ANOMALY C							
ANGLE 1 (DEG)	0.002	0.008	0.013	0.013	275	6	0.0080	0.0226	0.0114	6	6	100.0	ANGLE 2 (DEG)	0.003	0.017	0.013	0.016	275	6	0.0078	0.0221	0.0106	6	6	100.0
RANGE (M)	2.957	15.644	13.963	16.276	275	6	9.4847	16.5704	12.1483	6	6	100.0	RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	6	0.0

STATION = WL2F SATELLITE = ISS SUMMARY

STATION = WLPQ SATELLITE = ISS

ANGLE 1 RESIDUALS (DEG)								ANGLE 2 RESIDUALS (DEG)								RANGE RESIDUALS (M)								RANGE-RATE RESIDUALS (M/S)							
	MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A	M	ANOMALY C					
20090316/001624	20090316/002924	-0.000	0.005	66 100.0	0.005	0.005	69 100.0	2.886	13.354	69 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/015600	20090316/020412	-0.003	0.003	42 100.0	0.010	0.004	42 100.0	-5.968	12.674	42 97.6	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/050612	20090316/051736	-0.001	0.003	36 100.0	0.014	0.003	36 100.0	-4.332	10.425	36 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/064118	20090316/065412	0.001	0.006	67 100.0	0.010	0.003	67 100.0	1.735	16.194	67 98.5	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/081718	20090316/082848	-0.002	0.003	37 100.0	0.007	0.003	37 100.0	1.163	14.953	37 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												

STATION = WLPQ SATELLITE = ISS

RESIDUALS								VDNA NOISE								RATING									
MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.001	0.004	0.005	0.005	248	5	0.0021	0.0031	0.0026	5	5	100.0	ANGLE 2 (DEG)	0.009	0.009	0.004	0.011	251	5	0.0013	0.0031	0.0021	5	5	100.0
RANGE (M)	-0.192	10.710	13.950	14.944	251	5	10.6116	13.9374	12.0236	5	5	99.2	RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	5	0.0

STATION = WLPQ SATELLITE = ISS SUMMARY

STATION = WLPQ SATELLITE = STS-119

ANGLE 1 RESIDUALS (DEG)								ANGLE 2 RESIDUALS (DEG)								RANGE RESIDUALS (M)								RANGE-RATE RESIDUALS (M/S)							
	MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A		MEAN	SD	PTS	%USE A	M	ANOMALY C					
20090316/011818	20090316/012724	-0.002	0.002	24 100.0	0.010	0.004	24 100.0	-10.883	10.150	24 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/055836	20090316/060900	-0.001	0.004	39 100.0	0.010	0.003	39 100.0	-0.382	5.159	39 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												
20090316/073118	20090316/074218	-0.000	0.003	48 100.0	0.004	0.003	48 100.0	-0.023	8.919	48 100.0	-----	-----	-----	-----	0	0.0	0	0.0	0												

STATION = WLPQ SATELLITE = STS-119

RESIDUALS								VDNA NOISE								RATING									
MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.001	-----	0.003	-----	111	3	0.0008	0.0017	0.0013	3	3	100.0	ANGLE 2 (DEG)	0.007	-----	0.003	-----	111	3	0.0011	0.0017	0.0013	3	3	100.0
RANGE (M)	-2.497	-----	8.119	-----	111	3	2.5249	3.7362	3.3816	3	3	100.0	RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	3	0.0

STATION = WLPQ SATELLITE = STS-119 SUMMARY

COMBINED STATISTICS FOR EACH STATION

STATION = AGO3  
 SATELLITE = STS-119

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.031	-----	0.013	-----	31	1	0.0029	0.0029	0.0029	1	1	100.0	
ANGLE 2 (DEG)	-0.014	-----	0.007	-----	31	1	0.0031	0.0031	0.0031	1	1	100.0	
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	1	0.0	

COMBINED STATISTICS SUMMARY FOR AGO3

STATION = ANTOQ  
 SATELLITE = ISS

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.004	-----	0.003	-----	99	2	0.0013	0.0014	0.0013	2	2	100.0	
ANGLE 2 (DEG)	-0.004	-----	0.006	-----	99	2	0.0035	0.0057	0.0049	2	2	100.0	
RANGE (M)	-2.109	-----	7.142	-----	99	2	4.5078	8.6083	6.5478	2	2	100.0	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0	

COMBINED STATISTICS SUMMARY FOR ANTOQ

STATION = ASCQ  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.001	0.004	0.005	0.005	204	4	0.0004	0.0032	0.0023	4	4	100.0	
ANGLE 2 (DEG)	0.008	0.016	0.005	0.013	208	4	0.0004	0.0043	0.0025	4	4	100.0	
RANGE (M)	4.460	17.570	13.250	16.512	208	4	5.1062	17.6598	12.0336	4	4	99.5	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0	

COMBINED STATISTICS SUMMARY FOR ASCQ

STATION = EAFF  
 SATELLITE = ISS

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY

	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	0.002	0.010	0.008	0.009	213	4	0.0050	0.0113	0.0072	4	4	100.0	
ANGLE 2 (DEG)	-0.003	0.008	0.008	0.009	213	4	0.0051	0.0060	0.0055	4	4	100.0	
RANGE (M)	2.797	12.612	19.883	21.046	212	4	12.6056	19.2360	16.0413	4	4	98.1	
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	4	0.0	

COMBINED STATISTICS SUMMARY FOR EAFF

STATION = FRCF  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	-0.004	0.008	0.009	0.010	363	8	0.0033	0.0079	0.0055	8	8	100.0			
ANGLE 2 (DEG)	0.002	0.011	0.011	0.012	365	8	0.0034	0.0136	0.0090	8	8	100.0			
RANGE (M)	2.953	5.633	16.805	17.293	364	8	5.0507	23.6165	14.9166	8	8	98.6			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	8	0.0			

COMBINED STATISTICS SUMMARY FOR FRCF

STATION = MIL3  
 SATELLITE = STS-119

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	0.017	-----	0.008	-----	17	2	0.0058	0.0097	0.0084	2	2	100.0			
ANGLE 2 (DEG)	-0.003	-----	0.006	-----	21	2	0.0065	0.0071	0.0068	2	2	100.0			
RANGE (M)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	2	0.0			

COMBINED STATISTICS SUMMARY FOR MIL3

STATION = WL2F  
 SATELLITE = ISS

	RESIDUALS						VDNA NOISE						RATING		
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY		
ANGLE 1 (DEG)	0.002	0.008	0.013	0.013	275	6	0.0080	0.0226	0.0114	6	6	100.0			
ANGLE 2 (DEG)	0.003	0.017	0.013	0.016	275	6	0.0078	0.0221	0.0106	6	6	100.0			
RANGE (M)	2.957	15.644	13.963	16.276	275	6	9.4847	16.5704	12.1483	6	6	100.0			
RANGE-RATE (M/S)	-----	-----	-----	-----	0	0	-----	-----	-----	0	6	0.0			

## COMBINED STATISTICS SUMMARY FOR WL2F

STATION = WLPQ  
 SATELLITE = ISS  
 SATELLITE = STS-119

	RESIDUALS				VDNA NOISE				RATING				
	MEAN	DEV	SD	RSS	PTS	PASSES	MIN	MAX	RMS	PASSES	TOTALPASSES	%USE	ANOMALY
ANGLE 1 (DEG)	-0.001	0.003	0.004	0.005	359	8	0.0008	0.0031	0.0023	8	8	100.0	
ANGLE 2 (DEG)	0.008	0.008	0.004	0.010	362	8	0.0011	0.0031	0.0019	8	8	100.0	
RANGE (M)	-0.899	9.903	12.464	13.441	362	8	2.5249	13.9374	10.4119	8	8	99.4	
RANGE-RATE (M/S)	-----				0	0	-----				0	8	0.0

COMBINED STATISTICS SUMMARY FOR WLPQ

## **11. SN EVENT SUMMARY REPORT**

The SN Event Summary Report provides a detailed summary of the tracking data quality of each SN tracking data event for STS. This report gives a chronological listing of all STS SN events summarized by Tracking Data Relay Satellite (TDRS) used for each event. The start and stop time, as well as other information pertaining to data quality such as the number of invalid, anomalous, and usable frames of tracking data, are listed for each event. Each event is rated as either a success or a failure. Comments are included for significant anomalous tracking data or for events having more than 30% invalid tracking data. This report also includes a statistical summary regarding the overall tracking data quality for all events for each TDRS used for STS support. This report is generated after the launch of STS.

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TEAS  
TEAS  
TEAS  
TEAS TRACKING EVALUATION AUTOMATION SOFTWARE (TEAS)  
TEAS ALLIED SIGNAL TECHNICAL SERVICES CORPORATION  
TEAS TRACKING SUPPORT SERVICES (TSS)  
TEAS GODDARD SPACE FLIGHT CENTER  
TEAS BUILDING 28, ROOM N230  
TEAS GARY W. WILLIAMSON  
TEAS (301) 286-1323 PHONE  
TEAS  
TEAS  
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TEAS TEAS TEAS TEAS TEAS TEAS TEAS TEAS TEAS TEAS TEAS TEAS  
1 #####  
# Daily Statistics Start: 20090314/000000 GMT #  
# Daily Statistics End: 20090316/223901 GMT #  
# Mission Statistics Start: 20090314/000000 GMT #  
# Mission Statistics End: 20090316/223901 GMT #  
# Report Generated on: 20090316/224307 GMT #  
# Report Generated by: Gary Williamson (301) 286-1323 #  
#####  
1 STS-119 TDRS- 3 EVENT TRACKING SUMMARY LOG  
REPORT GENERATION TIME: 20090316/224307 GMT  
  
S  
EVT ORBIT TDRS- 3 AOS LOS C RET Q L PRED D O P P L E R GSTDN MODE NOISE  
NUM NUMBER MMDD/HHMMSS HHMMSS I SERV P T PTS PTS PTS PTS PTS PTS PTS PTS HZ % F COMMENTS  
2 1 0316/000345 003625 10 SSA1 A 3 197 90 2 105 192 65 0 0 0 11 53 F 46% invalid Doppler, no lock = 33%  
5 2 0316/015606 020746 10 SSA1 A 3 71 6 0 65 71 1 0 0 0 9 92  
8 3 0316/031024 033934 10 SSA1 A 3 170 4 0 166 170 1 0 0 0 9 98  
24 11 0316/143922 144902 10 SSA2 A 3 59 6 0 53 58 2 0 0 0 7 90
```

27 11,12 0316/155354 163034 10 SSA1 A 3 221 2 0 219 221 0 0 0 0 11 99  
 34 15 0316/204852 210802 10 SSA1 A 3 116 45 18 53 113 20 0 0 0 0 6 46 F 39% invalid Doppler, no lock = 17%  
 38 16 0316/222239 223859 10 SSA1 A 3 99 13 18 68 97 6 0 0 0 0 8 69 F 13% invalid Doppler, no lock = 6%

1 STS-119 TDRS- 4 EVENT TRACKING SUMMARY LOG  
 REPORT GENERATION TIME: 20090316/224307 GMT

EVT NUM NUMBER	ORBIT	S												COMMENTS					
		TDRS-	AOS	LOS	C	RET	Q	L	PRED	INV	ANM	USE	DCE		NL	TOT	DCE	NL	MIL
		MMDD/HHMMSS	HHMMSS	I	SERV	P	T	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	HZ	%	F
1 1		0315/234355	001855	10	SSA2	B	1	211	52	0	159	202	36	0	0	0	25	75	
4 2		0316/012447	015507	10	SSA2	B	1	183	2	1	180	182	1	0	0	0	4	98	
7 3		0316/023957	030947	10	SSA2	B	1	180	3	0	177	180	1	0	0	0	8	98	
10 4		0316/043202	050632	10	SSA2	B	1	208	5	1	202	206	2	0	0	0	3	97	
14 6		0316/074135	081435	10	SSA2	B	1	199	25	17	157	197	9	0	0	0	4	79	
16 7		0316/091837	094857	10	SSA2	B	1	183	18	11	154	181	5	0	0	0	3	84	
18 8		0316/105602	112412	10	SSA2	B	1	170	6	2	162	169	1	0	0	0	3	95	
20 9		0316/123201	130121	10	SSA2	B	1	177	9	5	163	177	0	0	0	0	3	92	
23 10,11		0316/140556	143846	10	SSA2	B	1	198	5	0	193	197	1	0	0	0	5	97	
26 11		0316/154025	155315	10	SSA2	B	1	78	7	0	71	78	2	0	0	0	0	91	
29 12,13		0316/171401	174931	10	SSA2	B	1	214	10	8	196	213	4	0	0	0	5	92	
31 13,14		0316/183308	192318	10	SSA2	B	1	302	3	0	299	302	0	0	0	0	3	99	
33 14,15		0316/202003	204813	10	SSA2	B	1	170	3	0	167	169	1	0	0	0	3	98	
37 16		0316/220216	222206	10	SSA2	B	1	120	0	0	120	120	0	0	0	0	4	100	

1 STS-119 TDRS- 5 EVENT TRACKING SUMMARY LOG  
 REPORT GENERATION TIME: 20090316/224307 GMT

EVT NUM NUMBER	ORBIT	S												COMMENTS					
		TDRS-	AOS	LOS	C	RET	Q	L	PRED	INV	ANM	USE	DCE		NL	TOT	DCE	NL	MIL
		MMDD/HHMMSS	HHMMSS	I	SERV	P	T	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	HZ	%	F
3 1,2		0316/003430	012410	10	SSA2	B	2	299	6	0	293	299	0	0	0	0	6	98	
6 2,3		0316/020828	023918	10	SSA2	B	2	186	27	19	140	183	7	0	0	0	7	75	
9 3,4		0316/034105	043015	10	SSA2	B	2	296	41	28	227	292	28	0	0	0	4	77	
11 4,5		0316/051450	060540	10	SSA2	B	2	306	18	8	280	305	5	0	0	0	3	92	
13 5,6		0316/064906	073616	10	SSA2	B	2	284	3	3	278	283	1	0	0	0	3	98	
15 6,7		0316/082442	091612	10	SSA2	B	2	310	2	0	308	310	0	0	0	0	5	99	
17 7,8		0316/100159	105529	10	SSA2	B	2	322	0	3	319	322	0	0	0	0	4	99	
19 9		0316/113921	123121	10	SSA2	B	2	313	4	2	307	313	1	0	0	0	4	98	
21 10		0316/131513	133823	10	SSA2	B	2	140	3	1	136	139	1	0	0	0	4	97	
25 11		0316/144936	153946	10	SSA2	B	2	302	31	12	259	298	15	0	0	0	0	86	
28 12		0316/163109	171329	10	SSA2	B	2	255	7	16	232	254	1	0	0	0	5	91	
30 13		0316/175731	183231	10	SSA2	B	2	211	12	24	175	208	4	0	0	0	5	83	
32 14		0316/193240	201930	10	SSA2	B	2	282	2	0	280	282	0	0	0	0	2	99	
35 15		0316/210930	213710	10	SSA2	B	2	167	3	2	162	167	0	0	0	0	3	97	

1 STS-119 TDRS- 6 EVENT TRACKING SUMMARY LOG

REPORT GENERATION TIME: 20090316/224307 GMT

S																					
EVT	ORBIT	TDRS-	6	AOS	LOS	C	RET	Q	L	PRED	INV	ANM	USE	DCE	NL	TOT	DCE	NL	MIL	NOISE	
NUM	NUMBER	MMDD/HHMMSS	HHMMSS	I	SERV	P	T	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	HZ	%	F
22	10	0316/134331	140511	10	SSA1	A	1	131	1	2	128	131	0	0	0	0	0	3	98		COMMENTS
36	15,16	0316/213749	220139	10	SSA1	A	1	144	3	0	141	144	0	0	0	0	0	3	98		

1 STS-119 TDRS-10 EVENT TRACKING SUMMARY LOG  
REPORT GENERATION TIME: 20090316/224307 GMT

S																					
EVT	ORBIT	TDRS-10	AOS	LOS	C	RET	Q	L	PRED	INV	ANM	USE	DCE	NL	TOT	DCE	NL	MIL	NOISE		
NUM	NUMBER	MMDD/HHMMSS	HHMMSS	I	SERV	P	T	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	PTS	HZ	%	F	
12	5	0316/060612	063922	10	SSA1	A	2	200	2	0	198	200	0	0	0	0	0	3	99		COMMENTS

1 STS-119 TDRS- 3 TRACKING DATA DAILY REPORT FOR DAY 1  
REPORT GENERATION TIME: 20090316/224307 GMT  
DAILY EVENTS: 2 TO 38 FROM 20090316/000345 TO 20090316/223859 GMT  
MISSION EVENTS: 2 TO 38 FROM 20090316/000345 TO 20090316/223859 GMT

	DAILY	MISSION
# OF EVENTS	7	7
# OF SUCCESSES	4	4
% SUCCESSES	57.1	57.1
# OF USABLE MINUTES	121.5	121.5
# OF ANOMALOUS MINUTES	6.3	6.3
# OF INVALID MINUTES	27.7	27.7
# OF TOTAL MINUTES	155.5	155.5
AV. USABLE MINUTES	17.4	17.4
AV. ANOMALOUS MINUTES	0.9	0.9
AV. INVALID MINUTES	4.0	4.0
AV. MINUTES PER EVENT	22.2	22.2
% USABLE	78.1	78.1
% ANOMALOUS	4.1	4.1
% INVALID	17.8	17.8

THE FOLLOWING DAILY EVENTS WERE RATED AS FAILURES FOR TDRS- 3:

EVT	YYYYMMDD/HHMMSS	SERV	COMMENT
2	20090316/000345	SSA1	46% invalid Doppler, no lock = 33%
34	20090316/204852	SSA1	39% invalid Doppler, no lock = 17%
38	20090316/222239	SSA1	13% invalid Doppler, no lock = 6%

1

STS-119 TDRS- 4 TRACKING DATA DAILY REPORT FOR DAY 1

REPORT GENERATION TIME: 20090316/224307 GMT

DAILY EVENTS: 1 TO 37 FROM 20090315/234355 TO 20090316/222206 GMT

MISSION EVENTS: 1 TO 37 FROM 20090315/234355 TO 20090316/222206 GMT

	DAILY	MISSION
# OF EVENTS	14	14
# OF SUCCESSES	14	14
% SUCCESSES	100.0	100.0
# OF USABLE MINUTES	400.0	400.0
# OF ANOMALOUS MINUTES	7.5	7.5
# OF INVALID MINUTES	24.7	24.7
# OF TOTAL MINUTES	432.2	432.2
AV. USABLE MINUTES	28.6	28.6
AV. ANOMALOUS MINUTES	0.5	0.5
AV. INVALID MINUTES	1.8	1.8
AV. MINUTES PER EVENT	30.9	30.9
% USABLE	92.6	92.6
% ANOMALOUS	1.7	1.7
% INVALID	5.7	5.7

NO EVENTS WERE RATED AS FAILURES FOR TDRS- 4.

1

STS-119 TDRS- 5 TRACKING DATA DAILY REPORT FOR DAY 1

REPORT GENERATION TIME: 20090316/224307 GMT

DAILY EVENTS: 3 TO 35 FROM 20090316/003430 TO 20090316/213710 GMT

MISSION EVENTS: 3 TO 35 FROM 20090316/003430 TO 20090316/213710 GMT

	DAILY	MISSION
# OF EVENTS	14	14
# OF SUCCESSES	14	14
% SUCCESSES	100.0	100.0
# OF USABLE MINUTES	566.0	566.0
# OF ANOMALOUS MINUTES	19.7	19.7
# OF INVALID MINUTES	26.5	26.5
# OF TOTAL MINUTES	612.2	612.2
AV. USABLE MINUTES	40.4	40.4
AV. ANOMALOUS MINUTES	1.4	1.4
AV. INVALID MINUTES	1.9	1.9
AV. MINUTES PER EVENT	43.7	43.7
% USABLE	92.5	92.5
% ANOMALOUS	3.2	3.2
% INVALID	4.3	4.3

NO EVENTS WERE RATED AS FAILURES FOR TDRS- 5.

1

STS-119 TDRS- 6 TRACKING DATA DAILY REPORT FOR DAY 1  
REPORT GENERATION TIME: 20090316/224307 GMT  
DAILY EVENTS: 22 TO 36 FROM 20090316/134331 TO 20090316/220139 GMT  
MISSION EVENTS: 22 TO 36 FROM 20090316/134331 TO 20090316/220139 GMT

	DAILY	MISSION
# OF EVENTS	2	2
# OF SUCCESSES	2	2
% SUCCESSES	100.0	100.0
# OF USABLE MINUTES	44.8	44.8
# OF ANOMALOUS MINUTES	0.3	0.3
# OF INVALID MINUTES	0.7	0.7
# OF TOTAL MINUTES	45.8	45.8
AV. USABLE MINUTES	22.4	22.4
AV. ANOMALOUS MINUTES	0.2	0.2
AV. INVALID MINUTES	0.3	0.3
AV. MINUTES PER EVENT	22.9	22.9
% USABLE	97.8	97.8
% ANOMALOUS	0.7	0.7
% INVALID	1.5	1.5

NO EVENTS WERE RATED AS FAILURES FOR TDRS- 6.

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STS-119 TDRS-10 TRACKING DATA DAILY REPORT FOR DAY 1  
REPORT GENERATION TIME: 20090316/224307 GMT  
DAILY EVENTS: 12 TO 12 FROM 20090316/060612 TO 20090316/063922 GMT  
MISSION EVENTS: 12 TO 12 FROM 20090316/060612 TO 20090316/063922 GMT

	DAILY	MISSION
# OF EVENTS	1	1
# OF SUCCESSES	1	1
% SUCCESSES	100.0	100.0
# OF USABLE MINUTES	33.0	33.0
# OF ANOMALOUS MINUTES	0.0	0.0
# OF INVALID MINUTES	0.3	0.3
# OF TOTAL MINUTES	33.3	33.3
AV. USABLE MINUTES	33.0	33.0
AV. ANOMALOUS MINUTES	0.0	0.0
AV. INVALID MINUTES	0.3	0.3
AV. MINUTES PER EVENT	33.3	33.3
% USABLE	99.0	99.0
% ANOMALOUS	0.0	0.0
% INVALID	1.0	1.0

NO EVENTS WERE RATED AS FAILURES FOR TDRS-10.

1	59811	STS119dc000	20090315/232805	4	0315/234355	001855
2	59845	STS119dc001	20090315/234112	3	0316/000345	003625
3	59814	STS119dc001	20090315/234112	5	0316/003430	012410
4	59815	STS119dc001	20090315/234112	4	0316/012447	015507
5	59826	STS119dc002	20090316/104110	3	0316/015606	020746
6	59822	STS119dc002	20090316/104110	5	0316/020828	023918
7	59823	STS119dc002	20090316/104110	4	0316/023957	030947
8	59846	STS119dc003	20090316/110408	3	0316/031024	033934
9	59829	STS119dc003	20090316/110408	5	0316/034105	043015
10	59830	STS119dc003	20090316/110408	4	0316/043202	050632
11	59831	STS119dc003	20090316/110408	5	0316/051450	060540
12	59832	STS119dc003	20090316/110408	10	0316/060612	063922
13	59833	STS119dc004	20090316/110442	5	0316/064906	073616
14	59834	STS119dc004	20090316/110442	4	0316/074135	081435
15	59835	STS119dc005	20090316/110514	5	0316/082442	091612
16	59836	STS119dc005	20090316/110514	4	0316/091837	094857
17	59837	STS119dc006	20090316/110546	5	0316/100159	105529
18	59838	STS119dc006	20090316/110546	4	0316/105602	112412
19	59839	STS119dc007	20090316/110623	5	0316/113921	123121
20	59840	STS119dc007	20090316/110623	4	0316/123201	130121
21	59841	STS119dc007	20090316/110623	5	0316/131513	133823
22	59842	STS119dc007	20090316/110623	6	0316/134331	140511
23	59843	STS119dc007	20090316/110623	4	0316/140556	143846
24	59945	STS119dc008	20090316/175751	3	0316/143922	144902
25	59942	STS119dc008	20090316/175751	5	0316/144936	153946
26	59943	STS119dc008	20090316/175751	4	0316/154025	155315
27	59947	STS119dc008	20090316/174042	3	0316/155354	163034
28	59939	STS119dc008	20090316/174042	5	0316/163109	171329
29	59940	STS119dc008	20090316/174042	4	0316/171401	174931
30	59925	STS119dc009	20090316/152857	5	0316/175731	183231
31	59926	STS119dc009	20090316/152857	4	0316/183308	192318
32	59927	STS119dc010	20090316/170433	5	0316/193240	201930
33	59928	STS119dc010	20090316/170433	4	0316/202003	204813
34	59953	STS119dc011	20090316/184058	3	0316/204852	210802
35	59949	STS119dc011	20090316/184058	5	0316/210930	213710
36	59950	STS119dc011	20090316/184058	6	0316/213749	220139
37	59951	STS119dc011	20090316/184058	4	0316/220216	222206
38	59952	STS119dc011	20090316/184058	3	0316/222239	223859